CLAIMS:

1. An optical device comprising:

a plurality of plates providing a plurality of flat surfaces positioned to provide either total external reflection or collimation of high energy radiation from a high energy radiation source, the plurality of plates located either after the radiation source or before a detector positioned to receive high energy radiation reflected from or collimated by the plurality of flat surfaces; wherein

the plurality of flat surfaces are non-parallel.

2. The optical device of claim 1, wherein either the source or the detector define an arcuate surface and each of the plurality of flat surfaces is substantially normal to the arcuate surface.

3. The optical device of claim 1 or 2, wherein the high energy radiation comprises X-ray radiation.

4. The optical device of claim 1 or 2, wherein the high energy radiation comprises extreme ultraviolet (EUV) radiation.

5. The optical device of any preceding claim, further comprising fixing means for fixing the position of the plurality of plates relative to each other.

6. The optical device of claim 5, wherein the fixing means is transmissive to the high energy radiation.

7. The optical device of any preceding claim, wherein the plurality of plates includes a coating material.

8. The optical device of any preceding claim, wherein the plurality of plates are formed from a material having a density less than 6 g/cm^3.

9. The optical device of any preceding claim, wherein the fixing means comprises an adhesive.

10. The optical device of any preceding claim, further comprising a positioning device for the positioning the plurality of plates relative to each other.

11. The optical device of any preceding claim, wherein the optical device is a multi-foil optic.

12. The optical device of any preceding claim, wherein the optical device is a Soller slit.

13. A method for performing high energy radiation lithography, comprising the steps of:

receiving high energy radiation from a high energy radiation source;

focusing the high energy radiation from the high energy radiation source using an optical device;

receiving the focused high energy radiation from the optical device onto a lithographic specimen via a lithographic mask.

14. The method of claim 13, wherein the high energy radiation comprises X-ray radiation.

15. The method of claim 13, wherein the high energy radiation comprises extreme ultraviolet (EUV) radiation.

16. A high energy lithographic system, comprising:

a high energy source;

an optical device for focusing high energy radiation from the high energy source;

a mask, which receives focused high energy radiation from the optical device; and

a specimen, which is imprinted with the pattern of the mask by the high energy radiation passing therethrough.

17. The high energy lithographic system of claim 16, wherein the high energy radiation comprises X-ray radiation.

18. The high energy lithographic system of claim 16, wherein the high energy radiation comprises extreme ultraviolet (EUV) radiation.